



General instructions:

- i) All questions are compulsory.
- ii) This question paper consists of four sections A, B, C, and D. Section A contains 5 questions of one mark each, Section B is of 5 questions of two marks each, Section C is of 12 questions of three marks each, one value based question of 4 marks and Section D is of 3 questions of five marks each.
- iii) There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of 3 marks and all questions of 5 marks each. A student should attempt only one of the alternatives in such questions.
- iv) Wherever necessary, the diagram drawn should be neat and properly labeled.

SECTION A

- 1. Sometimes a few chromosomes have secondary constrictions at a constant location. What are they known as? (1)
- 2. Name the minerals required for the following functions in plants: (1)
 - a) for pollen germination
 - b) for synthesis of Auxin
- 3. State Blackman's law of limiting factors. (1)
- 4. Mention the type of venation in following plants: (1)
 - a) Grass
 - b) Hibiscus
- 5. ECG is of great clinical significance. Why? (1)

SECTION B

- 6. Summarize the principal stages in the formation of root nodule in Soyabean. (2)
- 7. Identify the following plant growth regulators: (2)
 - a) involved in respiratory climactic
 - b) which acts as antagonist to Gibberellic acid
 - c) induces parthenocarpy
 - d) promotes bolting in cabbage.
- 8. List the major events in blood clotting. (2)

OR

State the role of diaphragm and intercostal muscles in inspiration and expiration

9. How is fat absorbed into blood stream in human beings? (2)

10. Write the name of the enzymes which catalyse the following biochemical reactions. (2)

A) Proteins \longrightarrow Dipeptides

B) Polysaccharides \longrightarrow Disaccharides

SECTION C

11. Discuss the factors responsible for the closing and opening of stomata in the leaves. (3)

12. While doing Biology practical, Tanvi identified a flower as Liliacea family. Mention any six features she observed in the flower to identify the family. (3)

13. Diagrammatically differentiate radial and conjoint vascular bundles. (3)

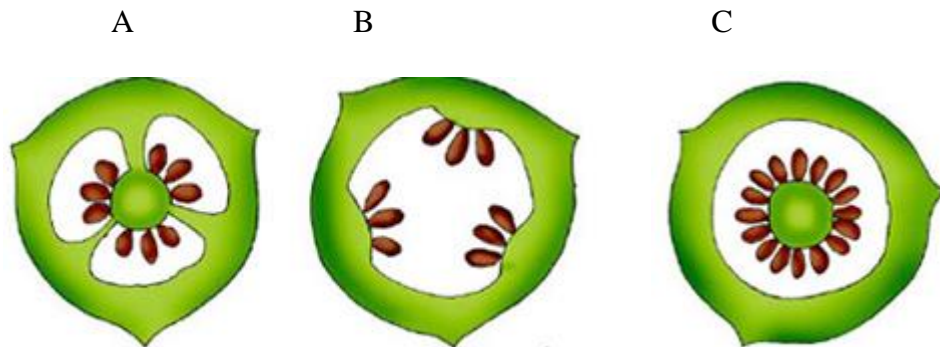
14. Draw labeled diagram of sectional view of chloroplast. (3)

OR

Draw a labeled sketch to show the internal structure of cilia.

15. Pentose sugar, adenine, thymine and phosphate groups. These are some of the main components of a biomolecule. Explain the structure of it. (3)

16. The given diagrams show three different types of placentation. Identify and give one example of each. (3)



17. Explain the stomatal apparatus in a dicot plant. How is it different from monocot plants? (3)

18. Catalytic reaction of enzymes is explained by Lock and Key hypothesis. Explain the hypothesis. (3)

19. Write any three significances of the equational cell division. (3)

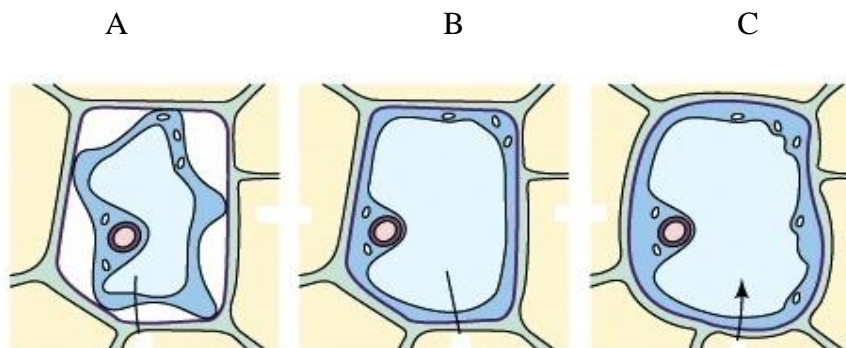
20. a) Specify the location of the following: (3)

i) Sphincter of Oddi

ii) crypts of Lieberkuhn

b) Pancrease is known as a compound gland. Why?

21. Study the given pictures. Name the solutions in which the cells A, B and C are placed and state the changes occurring in the cells. (3)



22. Explain why xylem transport is unidirectional and phloem transport is bidirectional? (3)

23.



. "There is clear evidence that tobacco package health warnings increase consumers' knowledge about the health consequences of tobacco use." The warning messages "contribute to changing consumers' attitudes towards tobacco use as well as changing consumers' behaviour."

- Warnings labels may have no effect on smokers. What can you as a teenager do to help the society to get rid of this evil?
- Passive smoking is more injurious than active smoking. Why?
- Name one disease caused by cigarette smoking. Give one symptom of this disease. (4)

SECTION D

24. a) Glucose undergoes partial oxidation to form two molecules of pyruvic acid in the cytoplasm of the cell in all living organisms. Name the scientists who elucidated this pathway. (5)

b) Mention the following steps of this pathway:

i) ATP is synthesized

ii) NAD is reduced to NADH

OR

a) Explain how ATP is synthesized during cellular respiration in mitochondria?

b) Name the final hydrogen acceptor in the electron transport system. Why this process is called oxidative phosphorylation?

c) Define respiratory quotient.

25. a) Describe the Z-scheme of light reaction. How does pigment system II supply electrons continuously? (5)

b) Give any two differences between cyclic and non-cyclic photo-phosphorylation.

OR

a) Describe the three important steps in the biosynthetic pathway of photosynthesis.

b) C₄ plants are special. Why?

26. a) Normal activities of the human heart is auto regulated by specialized muscles. Explain the role of these muscles in maintaining rhythmic contractile activity of the heart. (5)

b) Define cardiac cycle.

OR

a) Blood is the medium of transport of O₂ and CO₂. How is Oxygen transported by blood? Explain

b) Write how neural system maintains and moderate the respiratory rhythm in man.

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